



T & M Associates, Inc. Engineers & Surveyors

FEB 02 1994

HCR 63, Box 9A • Route 4
Lebanon, New Hampshire 03766
(603) 448-1295 • FAX: (603) 448-2965

January 24, 1994

Matthew Moran, Site Manager
Agency of Natural Resources
Department of Environmental Conservation
Site Management Section
103 South Main Street/West Office
Waterbury, Vermont 05671-0404

RE: NORWICH SQUARE, NORWICH VERMONT
UNDERGROUND STORAGE TANK/CONTAMINATED SOIL REMOVAL
(T & M Project No. 405493)

Dear Matthew:

Enclosed herein is the complete report on the referenced site located at the intersection of Elm and Main Street in Norwich, Vermont.

BACKGROUND

On November 4, 1993 T & M Associates received a telephone call from Bob Lee of Estes and Gallup Builders, Inc.. Estes and Gallup Builders, Inc. are the contractors for Clifford of Vermont and are responsible for construction of an addition to the Burton House located at the intersection of Elm and Main Street in the Town of Norwich. During the course of excavating the subgrade for the parking lot associated with the project, two 275 gallon USTs containing waste oil were discovered. Estes and Gallup contracted Lee's Oil Service to pump out the contents of the USTs. Information provided to T & M Associates indicated that there were 525 gallons of waste oil pumped from the two tanks. When the tanks were removed from the ground, it became evident that a release of petroleum product had occurred. We were requested to perform a site investigation relating to the removal of these tanks.

It is our understanding that Lee Jackson notified Ted Unkles of the Vermont Department of Environmental Conservation, Hazardous Materials Division, of the apparent release in accordance with Vermont's UST regulations.

SITE INVESTIGATION

Dana Arey of T & M Associates responded to the site on November 4, 1993 at approximately 2:00 PM. The location of the site is depicted on the locus map shown as Figure 1 and the Town of Norwich Tax Map, shown as Figure 2 both in Appendix A. Upon arrival we met with Tim Estes and Bob Lee, both of Estes and Gallup Builders. Figure 3 of Appendix A shows the location of the two USTs. According to Tim Estes, the area of the parking lot and the USTs is the former location of Southworth Motors automobile dealership. The USTs are suspected to have been used for the storage of waste oil associated with the auto dealership.

The two 275-gallon USTs were removed from the ground prior to Mr. Arey's arrival on-site. The photographs in Appendix B depict the tanks and the tank graves.

There was no piping encountered with the tanks. According to Bob Lee, the tank fill pipes were not on the tanks at the time of their removal and the fill holes were uncapped.

Our inspection of the tanks did not reveal any visual evidence of deterioration or perforations. It was apparent from the soil staining that a release had occurred from around the tank filler fitting area located at the top of the tanks. This release may have been a result of overfills or displacement of product by the introduction of surface water through the fittings at the top of the tanks. It is our understanding that the tanks were under a paved surface. We suspect that when the fill pipes were removed the protrusion through the pavement was not sealed. The top of the tanks was estimated to be approximately 6 inches below the pavement surface.

The release of a petroleum product was evident around most of the circumference of one of the tanks. The stained soils contained visible free product that resembled heavy petroleum. These saturated soils were up to 8" in thickness.

The visibly-contaminated soils were excavated from the tank grave area and stockpiled on plastic. A Thermo Environmental Instrument Model 580B organic vapor meter (OVM) with a 10.6 eV lamp field calibrated against an isobutylene standard was used to further screen the remaining soils for removal. Approximately 14 cubic yards of contaminated soils were eventually excavated from the tank grave. The entire disturbed area was approximately 10' x 10' by 6' deep.

OVM screening of soil surrounding the tanks revealed a peak reading of 27 ppm along the side wall of the westerly tank. Soils were excavated until the OVM readings were less than 1 ppm.

Soils surrounding the tanks were a combination of gravel at the surface with fine sand along the sides and beneath the tank. Groundwater was found to be a 8± feet below the ground surface. Interviews with a Town Selectman revealed that the properties around the site are served by municipal water.

Three soil samples were collected from the tank grave after removal of contaminated material. Two were composite samples along the side walls of the tanks. The third sample was a composite soil sample from beneath each of the tanks. The samples were collected in 250 ml glass containers with teflon covers, packaged on ice and shipped via United Parcel Service to Aquarian Analytical, Inc. located in Canterbury, New Hampshire. The samples were analyzed for volatile organic compounds by EPA Method 8240 and for total petroleum hydrocarbons (TPH) by EPA Method 418. The laboratory reports included as Appendix C and are summarized in the following table. Soil sample SS-1 is a composite sample from the side walls of the westerly tank, while SS-2 is a composite from the side walls from the easterly tank. SS-3 is a composite sample from beneath the two tanks.

SOILS SAMPLING RESULTS		
SAMPLE IDENTIFICATION	VOC	TPH (ppm)
SS-1	BD	5.00
SS-2	BD	73.00
SS-3	BD	13.00

BD - Below detection limit.

At the time the soils were excavated, construction activities and the available space on the property limited stockpiling on-site. The excavated contaminated soils were removed from the site and transported to another Norwich property owned by Clifford of Vermont. This property is located on U.S. Route 5 approximately 2 miles south of the subject site. The soils were stockpiled on and securely covered with plastic.

After discussing with Ted Unkles the location at which the contaminated soil was transported and stored and a reviewing the Vermont Department of Environmental Conservation's "Agency Guidelines for Petroleum Contaminated Soil and Carbon Media", we determined that the temporary storage site did not meet the criteria as specified in the regulation. Estes & Gallup leased a steel hazardous waste storage roll-off in which to store the contaminated soils at the U.S. Route 5 location. The roll-off was outfitted with a plastic liner and covered with a tarp to shield the soil from precipitation.

An eight point composite sample was collected from the contaminated soil stockpile and analyzed by Chem Serv Environmental Analysis for corrosivity, flashpoint, reactivity, PCBs and RCRA metals, pesticides, herbicides, TPH, VOC and semi-volatile organic compounds by the TCLP procedure. Laboratory results are included in Appendix C.

Analytical information regarding the contaminated soil was provided to Mike Vianni of the Consumate-Sanco landfill in Bethlehem, New Hampshire. The laboratory results were also provided to the New Hampshire Department of Environmental Services (NHDES) Waste Management Section, who provided approvals to allow for the disposal of the soils at the Consumate-Sanco landfill. A copy of the NHDES approval letter is provided as Appendix D.

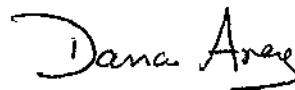
Contaminated soils were disposed at the landfill on December 20, 1993.

We are of the opinion that the release of petroleum contamination was limited and that the remediation of the contamination was effective in preventing any further environmental concern.

Please feel free to contact us if additional information is required or if you have any questions.

Sincerely,

T & M ASSOCIATES, INC.

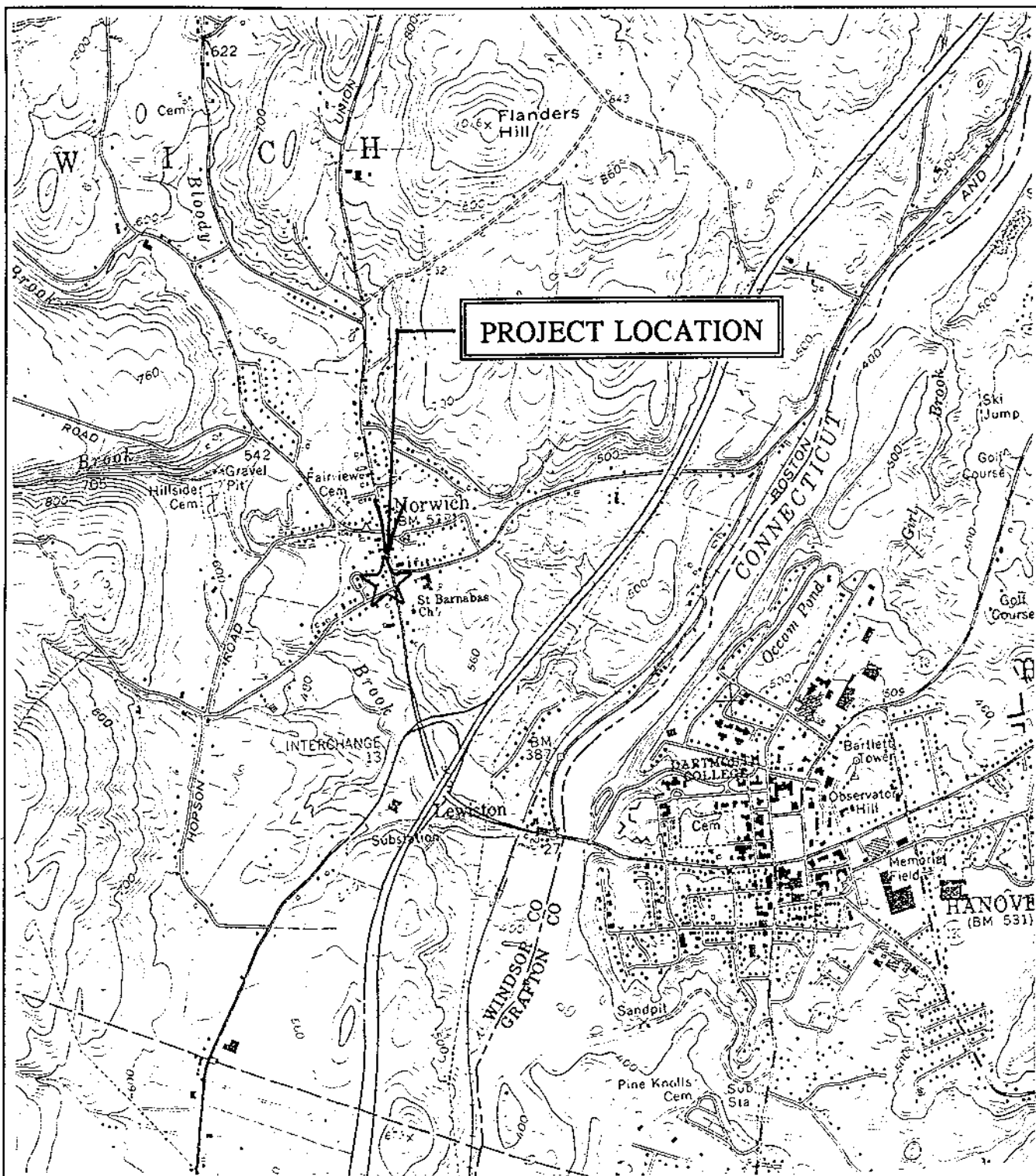


A. Dana Arey
Project Engineer

ADA:ccg:swb

cc: Clifford of Vermont
Estes & Gallup

APPENDIX A
FIGURES



U.S. GEOLOGICAL SURVEY MAP
HANOVER QUADRANGLE NH - VT 7.5 MINUTE SERIES

T & M ASSOCIATES, INC.
HCR 63, BOX 9-A, ROUTE 4
LEBANON, NH 03766
PHONE: (603) 448-1295

FIGURE
1

LOCUS PLAN
CLIFFORD OF VERMONT
BURTON HOUSE
ELM STREET, NORWICH, VERMONT

DESIGNED BY: ADA

DRAWN BY: ADA

DATE: January, 1994

JOB #: 405493



T & M ASSOCIATES, INC.
HCR 63, BOX 9-A, ROUTE 4
LEBANON, NH 03766
PHONE: (603) 448-1295

FIGURE
2

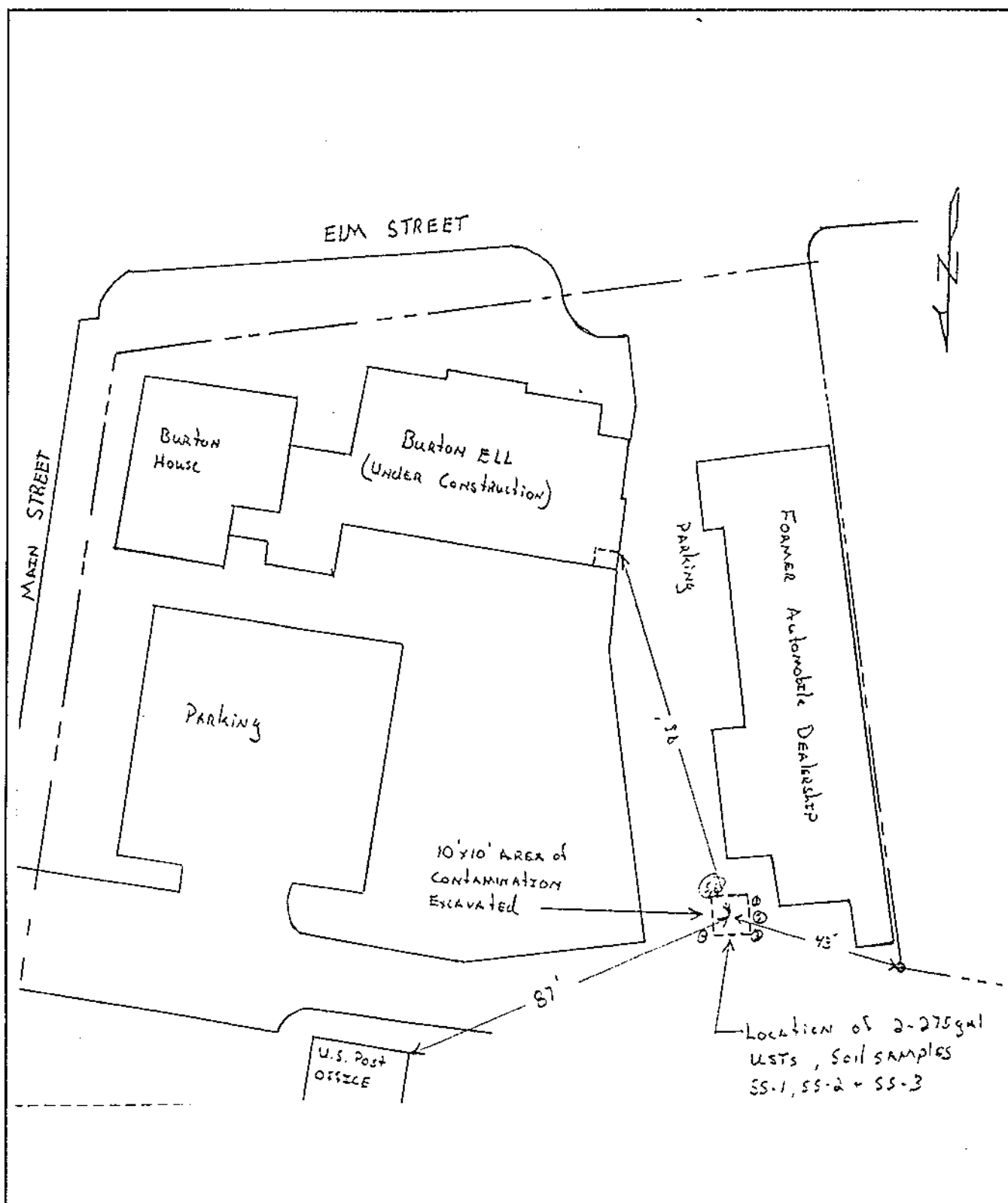
TAX MAP LOCATION
CLIFFORD OF VERMONT
BURTON HOUSE
ELM STREET, NORWICH, VERMONT

DESIGNED BY: ADA

DRAWN BY: ADA

DATE: January, 1994

JOB #: 405493



T & M ASSOCIATES, INC.
HCR 63, BOX 9-A, ROUTE 4
LEBANON, NH 03766
(603) 448-1295

FIGURE
3

SITE PLAN
CLIFFORD OF VERMONT
BURTON HOUSE
ELM STREET, NORWICH, VERMONT

DESIGNED BY: ADA

DRAWN BY: ADA

DATE: January, 1994

JOB #: 405493

APPENDIX B
PHOTOGRAPHS



Norwich Square USTs November, 1993



Norwich Square Tank Grave
Note Stained Soils on Side Walls

APPENDIX C
LABORATORY REPORTS

NOV. 23 1993



AQUARIAN ANALYTICAL INC.

Laboratory Services

P.O. Box 186

Canterbury, N.H. 03224

603-783-9097

11-22-93, 09:35

Mr. Dana Arey
T&M Associates, Inc.
HCR 63, Box 9A
Route 4
Lebanon, N.H. 03766

Dear Mr. Arey:

Please find enclosed the reports, and invoice for the samples that were logged in on, 11-08-93.

AAI Sample	Date Sampled	Project Description	Sample Location
11139	11-05-93	NORWICH SQUARE	SS-1
11140	11-05-93	NORWICH SQUARE	SS-2
11141	11-05-93	NORWICH SQUARE	SS-3

To perform these analyses, the following methods were used:

QTY. EPA Methodologies/Applications

3	EPA-8240	VOA Soil/Sludge
3	TPH, EPA-418.1	(IR) soil

Thank you for using Aquarian Analytical Inc. on this project.
If I can be of any further help, please feel free to call.

Sincerely,

William M. Rice
William M. Rice
Laboratory Director

doc. L01477



AQUARIAN ANALYTICAL INC.

Laboratory Services

P.O. Box 186
Canterbury, N.H. 03224
603-783-9097

Volatile Organic Report 11-22-93, 09:32 Sample 11139

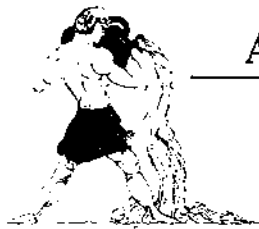
Sample Matrix = Soil Project = NORWICH SQUARE
Date Sampled = 11-05-93 Sampler = DANA AREY
Date Logged In = 11-08-93, 14:33 Location = SS-1
Date of Analysis = 11-14-93 Town = NORWICH

Organic Compound	Result (ppb)	Det. Lim. (ppb)
Bromodichloromethane	BD	30.0
Chlorodibromomethane	BD	30.0
Bromoform	BD	30.0
Chloroform	BD	30.0
Carbon Tetrachloride	BD	30.0
Dichloromethane	BD	60.0
1,1-dichloroethane	BD	30.0
1,2-dichloroethane	BD	60.0
1,1,1-trichloroethane	BD	30.0
1,1,2-trichloroethane	BD	30.0
1,1-dichloroethylene	BD	30.0
Trichloroethylene	BD	30.0
Tetrachloroethylene	BD	30.0
1,2-Dichloroethylene (c)	BD	30.0
1,2-Dichloroethylene (t)	BD	30.0
Chloroethane	BD	30.0
Vinylchloride	BD	30.0
Bromomethane	BD	30.0
Chloromethane	BD	30.0
Trichlorofluoromethane	BD	60.0
Trichlorotrifluoroethane	BD	60.0
Benzene	BD	30.0
Toluene	BD	30.0
Ethylbenzene	BD	30.0
m&p-Xylene	BD	30.0
o-Xylene	BD	30.0
Chlorobenzene	BD	30.0
1,2-dichlorobenzene	BD	30.0
1,3-dichlorobenzene	BD	30.0
1,4-dichlorobenzene	BD	30.0
1,2,4-trichlorobenzene	BD	60.0
Styrene	BD	30.0
Acetone	BD	3000.0
Tetrahydrofuran	BD	750.0
Diethylether	BD	450.0
Methyl t-butyl ether	BD	30.0
Methyl isobutyl ketone	BD	750.0
Methyl ethyl ketone	BD	750.0
Carbon Disulfide	BD	60.0

Comments:

TPH was performed with fuel oil as the standard.

Method of VOA Analyses = EPA-8240, BD = Below Detection Limit
doc. m8240n



AQUARIAN ANALYTICAL INC.

Laboratory Services

P.O. Box 186
Canterbury, N.H. 03224
603-783-9097
TPH only Reoprt
11-22-93, 09:31
Sample 11139

Date Sampled = 11-05-93
Date Logged In = 11-08-93, 14:33
Date Analyzed = 11-12-93
Person Sampling = DANA AREY
Location = SS-1
Town = NORWICH

Analysis	Result	Detection Limit
Total Petroleum Hydrocarbon	5.00	2.00
Method = EPA 418.1		results are expressed in parts per million (ppm)
Percent Moisture	7.4	

Comments:

BD = Below Detection Limit

The results on this page were performed by a N.H. Certified
Reference laboratory.



AQUARIAN ANALYTICAL INC.

Laboratory Services

P.O. Box 186
Canterbury, N.H. 03224
603-783-9097

Volatile Organic Report

11-22-93, 09:32

Sample 11140

Sample Matrix = Soil Project = NORWICH SQUARE
Date Sampled = 11-05-93 Sampler = DANA AREY
Date Logged In = 11-08-93, 14:35 Location = SS-2
Date of Analysis = 11-14-93 Town = NORWICH

Organic Compound	Result (ppb)	Det. Lim. (ppb)
Bromodichloromethane	BD	25.0
Chlorodibromomethane	BD	25.0
Bromoform	BD	25.0
Chloroform	BD	25.0
Carbon Tetrachloride	BD	25.0
Dichloromethane	BD	50.0
1,1-dichloroethane	BD	25.0
1,2-dichloroethane	BD	50.0
1,1,1-trichloroethane	BD	25.0
1,1,2-trichloroethane	BD	25.0
1,1-dichloroethylene	BD	25.0
Trichloroethylene	BD	25.0
Tetrachloroethylene	BD	25.0
1,2-Dichloroethylene (c)	BD	25.0
1,2-Dichloroethylene (t)	BD	25.0
Chloroethane	BD	25.0
Vinylchloride	BD	25.0
Bromomethane	BD	25.0
Chloromethane	BD	25.0
Trichlorofluoromethane	BD	50.0
Trichlorotrifluoroethane	BD	50.0
Benzene	BD	25.0
Toluene	BD	25.0
Ethylbenzene	BD	25.0
m&p-Xylene	BD	25.0
o-Xylene	BD	25.0
Chlorobenzene	BD	25.0
1,2-dichlorobenzene	BD	25.0
1,3-dichlorobenzene	BD	25.0
1,4-dichlorobenzene	BD	25.0
1,2,4-trichlorobenzene	BD	50.0
Styrene	BD	25.0
Acetone	BD	2500.0
Tetrahydrofuran	BD	625.0
Diethylether	BD	375.0
Methyl t-butyl ether	BD	25.0
Methyl isobutyl ketone	BD	625.0
Methyl ethyl ketone	BD	625.0
Carbon Disulfide	BD	50.0

Comments:

TPH was performed with fuel oil as the standard.

Method of VOA Analyses = EPA-8240, BD = Below Detection Limit
doc. m8240n



AQUARIAN ANALYTICAL INC.

Laboratory Services

P.O. Box 186
Canterbury, N.H. 03224
603-783-9097

TPH only Reoprt

11-22-93, 09:31
Sample 11140

Date Sampled = 11-05-93
Date Logged In = 11-08-93, 14:35
Date Analyzed = 11-12-93
Person Sampling = DANA AREY
Location = SS-2
Town = NORWICH

Analysis	Result	Detection Limit
Total Petroleum Hydrocarbon	73.00	2.00
Method = EPA 418.1		results are expressed in parts per million (ppm)
Percent Moisture	5.7	

Comments:

BD = Below Detection Limit

The results on this page were performed by a N.H. Certified
reference laboratory.



AQUARIAN ANALYTICAL INC.

Laboratory Services

P.O. Box 186

Canterbury, N.H. 03224

603-783-9097

Volatile Organic Report

11-22-93, 09:32

Sample 11141

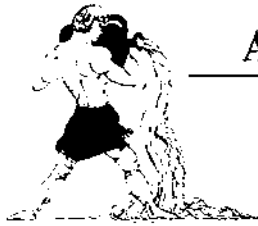
Sample Matrix = Soil Project = NORWICH SQUARE
Date Sampled = 11-05-93 Sampler = DANA AREY
Date Logged In = 11-08-93, 14:35 Location = SS-3
Date of Analysis = 11-14-93 Town = NORWICH

Organic Compound	Result (ppb)	Det. Lim. (ppb)
Bromodichloromethane	BD	25.0
Chlorodibromomethane	BD	25.0
Bromoform	BD	25.0
Chloroform	BD	25.0
Carbon Tetrachloride	BD	25.0
Dichloromethane	BD	50.0
1,1-dichloroethane	BD	25.0
1,2-dichloroethane	BD	50.0
1,1,1-trichloroethane	BD	25.0
1,1,2-trichloroethane	BD	25.0
1,1-dichloroethylene	BD	25.0
Trichloroethylene	BD	25.0
Tetrachloroethylene	BD	25.0
1,2-Dichloroethylene (c)	BD	25.0
1,2-Dichloroethylene (t)	BD	25.0
Chloroethane	BD	25.0
Vinylchloride	BD	25.0
Bromomethane	BD	25.0
Chloromethane	BD	25.0
Trichlorofluoromethane	BD	50.0
Trichlorotrifluoroethane	BD	50.0
Benzene	BD	25.0
Toluene	BD	25.0
Ethylbenzene	BD	25.0
m&p-Xylene	BD	25.0
o-Xylene	BD	25.0
Chlorobenzene	BD	25.0
1,2-dichlorobenzene	BD	25.0
1,3-dichlorobenzene	BD	25.0
1,4-dichlorobenzene	BD	25.0
1,2,4-trichlorobenzene	BD	50.0
Styrene	BD	25.0
Acetone	BD	2500.0
Tetrahydrofuran	BD	625.0
Diethylether	BD	375.0
Methyl t-butyl ether	BD	25.0
Methyl isobutyl ketone	BD	625.0
Methyl ethyl ketone	BD	625.0
Carbon Disulfide	BD	50.0

Comments:

TPH was performed with fuel oil as the standard.

Method of VOA Analyses = EPA-8240, BD = Below Detection Limit
doc. m8240n



AQUARIAN ANALYTICAL INC.

Laboratory Services

P.O. Box 186
Canterbury, N.H. 03224
603-783-9097

TPH only Reoprt

11-22-93, 09:31
Sample 11141

Date Sampled = 11-05-93
Date Logged In = 11-08-93, 14:35
Date Analyzed = 11-12-93
Person Sampling = DANA AREY
Location = SS-3
Town = NORWICH

Analysis	Result	Detection Limit
Total Petroleum Hydrocarbon	13.00	2.00
Method = EPA 418.1		results are expressed in parts per million (ppm)
Percent Moisture	5.0	

Comments:

ND = Below Detection Limit

The results on this page were performed by a N.H. Certified
reference laboratory.



Laboratory Services

FAX: (603) 783-9097
PHONE: (603) 783-9097

[illegible]

DEC. 06 1993



317 Elm Street
Milford, N.H. 03055
(603) 673-5440
FAX (603) 673-0366

Mr. Dana Arey
T & M Associates
HCR 63 Box 9A
Lebanon NH 03766

Norwich Square
Norwich VT

Laboratory # K15-93-04
Control # 8522



317 Elm Street
Milford, N.H. 03055
(603) 673-5440
FAX (603) 673-0366

MR. DANA AREY
T & M ASSOCIATES
HCR 63 BOX 9A
LEBANON NH 03766

LABORATORY # : K15-93-04
DATE SAMPLED : 11/12/93
DATE RECEIVED : 11/15/93
DATE COMPLETED : 11/22/93
PICK UP : NO
SAMPLER : D. AREY
PURCHASE ORDER #: N/A
CONTROL # : 8522

JOB NAME: NORWICH SQUARE
LOCATION: NORWICH, VT

TEST PARAMETER	RESULTS	DATE COMPLETED	EPA METHOD	DETECTION LIMIT	ANALYST
-------------------	---------	-------------------	---------------	--------------------	---------

GRAB

SAMPLE IDENTITY: TANK GRAVE

CORROSIVITY (pH)	7.28	11/16/93	9045	0-14	LP
FLASHPOINT	>160°F	11/18/93	MOD.1010	40°F	LP

REACTIVITY:

CYANIDE (mg/Kg)	<25.	11/17/93	SW846 7.3.3.2	25.mg/Kg	LC
SULFIDE (mg/Kg)	<50.	11/17/93	SW846 7.3.4.1	50.mg/Kg	LC

TOXIC CHARACTERIZATION LEACHATE PROCEDURE (TCLP METHOD 1311)

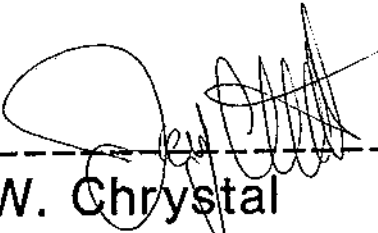
ARSENIC	<0.10	11/22/93	6010	0.10	CL
BARIUM	0.63	11/22/93	6010	0.03	CL
CADMIUM	<0.05	11/22/93	6010	0.05	CL
CHROMIUM	<0.10	11/22/93	6010	0.10	CL
LEAD	<0.40	11/22/93	6010	0.40	CL
MERCURY	<0.0005	11/18/93	7470	0.0005	LC
SELENIUM	<0.10	11/22/93	6010	0.10	CL
SILVER	<0.20	11/22/93	6010	0.20	CL

ALL RESULTS ARE IN (mg/L) EXCEPT AS NOTED.

All analyses are performed in accordance with above referenced U.S.E.P.A./Standard Methods/ASTM Methodologies.

Inorganic results are in (mg/L) except as noted.

Certified by: _____


Jay W. Chrystal
Laboratory Director

Organic Analyses

**PCB
EPA METHOD 8080**

CUSTOMER: T+M ASSOC.

LAB#: K15-93-04

SAMPLE LOCATION: NORWICH SQUARE NORWICH, VT

JOB#: N/A

SAMPLE IDENTITY: TANK GRAVE

CONTROL #: 8522

DATE SAMPLED: 11/12/93

REC'D: 11/15/93

DATE ANALYZED: 11/17/93

DATE EXTRACTED: 11/16/93

MATRIX: SOLID

PERCENT MOISTURE: 8.41%

COMPOUND

**CONCENTRATION
(UG/KG)**

**DETECTION LIMIT MULTIPLIER:
(UG/KG) X 100**

AROCLOR 1016/1242
AROCLOR 1221
AROCLOR 1232
AROCLOR 1248
AROCLOR 1254
AROCLOR 1260

BDL
BDL
BDL
BDL
BDL
BDL

10
20
10
10
10
10

BDL=BELOW DETECTION LIMIT

CERTIFIED: _____

Cut



**TOTAL PETROLEUM HYDROCARBONS
EPA MODIFIED METHOD 8100**

CUSTOMER: T+M ASSOC.

LAB#: K15-93-04

SAMPLE LOCATION: NORWICH SQUARE NORWICH, VT

JOB#: N/A

SAMPLE IDENTITY: TANK GRAVE

CONTROL #: 8522

DATE SAMPLED: 11/12/93

REC'D: 11/15/93

DATE ANALYZED: 11/17/93

DATE EXTRACTED: 11/16/93

MATRIX: SOLID

PERCENT MOISTURE: 8.41%

COMPOUND

CONCENTRATION

DETECTION LIMIT MULTIPLIER:

(MG/KG)

(MG/KG) X 1

TOTAL PETROLEUM
HYDROCARBONS AS
FUEL OIL

1,200

10

BDL=BELOW DETECTION LIMIT

CERTIFIED BY: Cu

TOXIC CHARACTERIZATION LEACHATE PROCEDURE (TCLP)

VOLATILE ORGANIC ANALYSIS
EPA METHOD 1311/8260

CUSTOMER: T + M ASSOC.

LAB#: K15-93-04

SAMPLE LOCATION: NORWICH SQUARE NORWICH, VT

JOB#: N/A

SAMPLE IDENTITY: TANK GRAVE

CONTROL #: 8522

DATE SAMPLED: 11/12/93

REC'D: 11/15/93

DATE ANALYZED: 11/24/93

DATE EXTRACTED: 11/22/93

MATRIX: SOLID

COMPOUND	CONCENTRATION	DETECTION LIMIT MULTIPLIER:
	(UG/L)	(UG/L) X 10
VINYL CHLORIDE	BDL	5
1,1-DICHLOROETHENE	BDL	5
CHLOROFORM	BDL	5
1,2-DICHLOROETHANE	BDL	5
2-BUTANONE	BDL	5
CARBON TETRACHLORIDE	BDL	5
TRICHLOROETHENE	BDL	5
BENZENE	BDL	5
TETRACHLOROETHENE	BDL	5
CHLOROBENZENE	BDL	5
1,4-DICHLOROBENZENE	BDL	5

BDL = BELOW DETECTION LIMIT

CERTIFIED BY: CL



TOXIC CHARACTERIZATION LEACHATE PROCEDURE (TCLP)

SEMIVOLATILE ORGANIC ANALYSIS
EPA METHOD 1311/8270

CUSTOMER: T+M ASSOC.

LAB#: K15-93-04

SAMPLE LOCATION: NORWICH SQUARE NORWICH, VT

JOB#: N/A

SAMPLE IDENTITY: TANK GRAVE

CONTROL #: 8522

DATE SAMPLED: 11/12/93

REC'D: 11/15/93

DATE ANALYZED: 11/29/93

DATE EXTRACTED: 11/16/93

MATRIX: SOLID

COMPOUND	CONCENTRATION (UG/L)	DETECTION LIMIT MULTIPLIER: (UG/L) X 2
M-CRESOL	BDL	10
O-CRESOL	BDL	10
P-CRESOL	BDL	10
PENTACHLOROPHENOL	BDL	10
2,4,5-TRICHLOROPHENOL	BDL	10
2,4,6-TRICHLOROPHENOL	BDL	10
2,4-DINITROTOLUENE	BDL	10
HEXACHLOROBENZENE	BDL	10
HEXACHLORO-1,3-BUTADIENE	BDL	10
HEXACHLOROETHANE	BDL	10
NITROBENZENE	BDL	10
PYRIDINE	BDL	10

BDL=BELOW DETECTION LIMIT

CERTIFIED BY:

cl

TOXIC CHARACTERIZATION LEACHATE PROCEDURE (TCLP)

PESTICIDES
EPA METHOD 1311/8080

CUSTOMER: T+M ASSOC.

LAB#: K15-93-04

SAMPLE LOCATION: NORWICH SQUARE NORWICH, VT

JOB#: N/A

SAMPLE IDENTITY: TANK GRAVE

CONTROL #: 8522

DATE SAMPLED: 11/12/93

REC'D: 11/15/93

DATE ANALYZED: 11/29/93

DATE EXTRACTED: 11/22/93

MATRIX: SOLID

COMPOUND

CONCENTRATION
(UG/L)

DETECTION LIMIT MULTIPLIER:
(UG/L) X 2

LINDANE

BDL

0.1

HEPTACHLOR

BDL

0.1

HEPTACHLOR EPOXIDE

BDL

0.1

ENDRIN

BDL

0.1

METHOXYCHLOR

BDL

1

CHLORDANE

BDL

1

TOXAPHENE

BDL

1

BDL=BELOW DETECTION LIMIT

CERTIFIED BY:

Cil

TOXIC CHARACTERIZATION LEACHATE PROCEDURE (TCLP)

HERBICIDES
EPA METHOD 1311/8150

CUSTOMER: T + M ASSOC.

LAB#: K15-93-04

SAMPLE LOCATION: NORWICH SQUARE NORWICH, VT

JOB#: N/A

SAMPLE IDENTITY: TANK GRAVE

CONTROL #: 8522

DATE SAMPLED: 11/12/93

REC'D: 11/15/93

DATE ANALYZED: 11/19/93

DATE EXTRACTED: 11/17/93

MATRIX: SOLID

COMPOUND

CONCENTRATION

DETECTION LIMIT MULTIPLIER:

2,4-D

(UG/L)

(UG/L) X 2

BDL

10

SILVEX

BDL

10

BDL = BELOW DETECTION LIMIT

CERTIFIED: _____

Cu

Quality Control



317 Elm Street
Milford, N.H. 03055
(603) 673-5440
FAX (603) 673-0366

STANDARD TCLP DATA PACKAGE

CUSTOMER: T & M ASSOC.

LABORATORY #: K15-93-04
CONTROL #: 8522

JOB NAME: NORWICH SQUARE
LOCATION: NORWICH, VT

MATRIX SPIKE RECOVERY FORM

SPIKE SAMPLE ID: 8522

PARAMETERS	SPIKE CONCENTRATION	SAMPLE CONCENTRATION	CONCENTRATION RECOVERED	% RECOVERY
ARSENIC	1.00	<0.10	1.08	108
BARIUM	2.00	0.63	1.86	93
CADMIUM	1.00	<0.05	1.02	102
CHROMIUM	2.00	<0.10	2.02	101
LEAD	2.00	<0.40	2.10	105
MERCURY	0.0030	<0.0005	0.0023	76
SELENIUM	1.00	<0.10	1.05	105
SILVER	2.00	<0.20	1.88	94

DUPLICATE SAMPLE ID: 8522
MERCURY DUPLICATE SAMPLE ID: 8628

METHOD BLANK RESULTS

DUPLICATE SAMPLE RESULTS

	RESULTS	ORIGINAL	RESULTS DUPLICATE	RPD
ARSENIC	<0.10	<0.10	<0.10	0
BARIUM	<0.03	0.63	0.45	33
CADMIUM	<0.05	<0.05	<0.05	0
CHROMIUM	<0.10	<0.10	<0.10	0
LEAD	<0.40	<0.40	<0.40	0
MERCURY	<0.0005	<0.0005	<0.0005	0
SELENIUM	<0.10	<0.10	<0.10	0
SILVER	<0.20	<0.20	<0.20	0

DATE : 11/22/93

LABORATORY #: K15-93-04

CUSTOMER : T & M ASSOCIATES

CONTROL #: 8522

INORGANIC QUALITY CONTROL INFORMATION

Chemserve minimum quality control requires matrix or duplicate analysis every ten samples analyzed. In addition, all samples are compared to a minimum of a three point calibration curve and a reagent blank. Any digestion or extraction requires a method blank or equipment blank to verify no presence of cross contamination or carry-over. Matrix spike recoveries are generally required to be within plus or minus 25%. Extensive QC data is available for this project at our facility.

CERTIFICATION:

I certify that all quality control measures were within specification guidelines with the exception of noted deviation. (if any)

Certified by



MICHELLE R. COHEN - INORGANICS SUPERVISOR

A detailed QA/QC manual is available upon request.

TCLP SPIKE RECOVERY FORM
EPA METHOD 1311/8260

CUSTOMER: T+M ASSOC.

LAB#: K15-93-04

SAMPLE LOCATION: NORWICH SQUARE NORWICH, VT

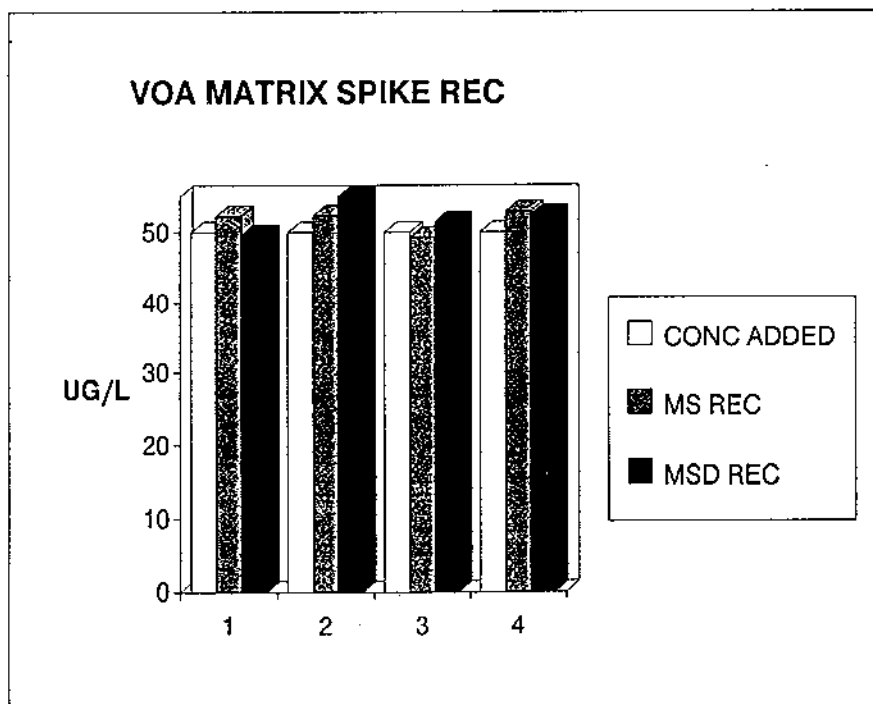
JOB#: N/A

SAMPLE IDENTITY: QC SPIKES/8522

CONTROL #: 8522

DATE ANALYZED: 11/24/93

COMPOUND	ONC ADDE UG/L	AMT REC UG/L	DUP AMT REC UG/L	%REC	DUP % REC	%DIFF
1,1-DICHLOROETHENE	50	52.19	49.62	104%	99%	5%
BENZENE	50	52.28	57.02	105%	114%	9%
TRICHLOROETHENE	50	49.33	51.42	99%	103%	4%
CHLOROBENZENE	50	52.86	52.36	106%	105%	1%



CONTROL LIMITS +/- 50%

TCLP SPIKE RECOVERY FORM
EPA METHOD 1311/8080

CUSTOMER: T+M ASSOC.

LAB#: K15-93-04

SAMPLE LOCATION: NORWICH SQUARE NORWICH, VT

JOB#: N/A

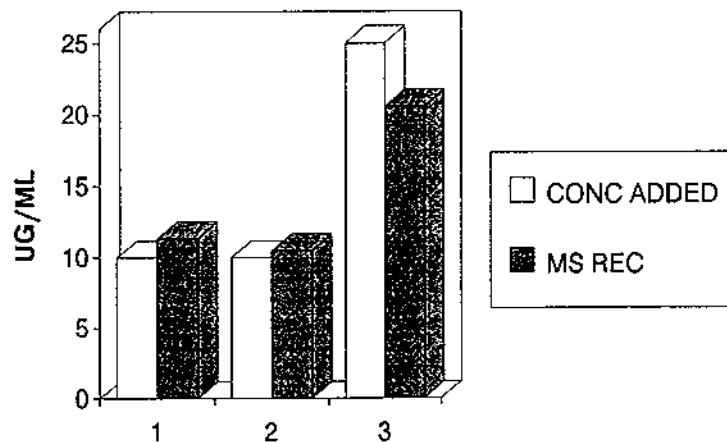
SAMPLE IDENTITY: QC SPIKE/8522

CONTROL #: 8522

DATE ANALYZED: 11/29/93

COMPOUND	CONC ADDED UG/ML	AMT REC UG/ML	%RECOVERY
LINDANE	10	11.35	114%
HEPTACHLOR	10	10.48	105%
ENDRIN	25	20.55	82%

PESTICIDE MATRIX SPIKE RECOVERY



SPIKE RECOVERY LIMITS

LINDANE 46-127%

HEPTACHLOR 35-130%

ENDRIN 42-139%

TCLP HERBICIDE SPIKE RECOVERY FORM
EPA METHOD 1311/8150

CUSTOMER: T+M ASSOC.

LAB#: K15-93-04

SAMPLE LOCATION: NORWICH SQUARE NORWICH, VT

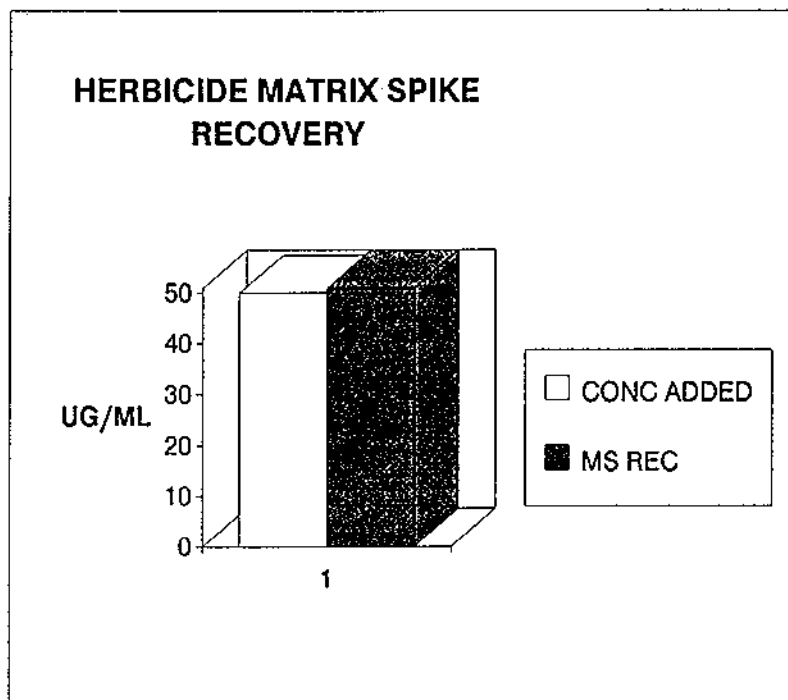
JOB#: N/A

SAMPLE IDENTITY: QC SPIKE/8522

CONTROL #: 8522

DATE ANALYZED: 11/29/93

COMPOUND	CONC ADDED UG/ML	AMT REC UG/ML	%RECOVERY
SILVEX	50	58.46	117%



CONTROL LIMITS \pm 50%

Chain of Custody and Certification

APPENDIX D

SOIL DISPOSAL APPROVAL LETTER